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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,891	04/20/2005	Hideo Yoshizawa	SHM-16048	6103
40854	7590	10/01/2007		
RANKIN, HILL, PORTER & CLARK LLP 38210 Glenn Avenue WILLOUGHBY, OH 44094-7808			EXAMINER SZEWCZYK, CYNTHIA	
			ART UNIT 1709	PAPER NUMBER
			MAIL DATE 10/01/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,891

Applicant(s)

YOSHIZAWA, HIDEO

Examiner

Cynthia Szewczyk

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on October 3, 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>10/31/05, 5/9/05, 4/20/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This is the initial office action based on YOSHIZAWA US application 10/531,891.
2. Claims 1-9 are currently pending and have been fully considered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 2, 5, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over RITTER JR. et al. (US 3,881,906) in view of BOCELLI et al. (US 4,540,426) and KAHLE et al. (US 4,376,643).

RITTER JR. et al. discloses a method and apparatus for "heating flat sheets to the softening point of the glass, bending the heated sheets to a desired curvature and thereafter cooling the bent sheets in a controlled manner to a temperature below the

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annealing range of the glass" (col. 1, lines 27-30). Figure 1 of RITTER JR et al. discloses a furnace (12) to heat the glass sheet to the softening point. RITTER JR et al. uses air-cooling against opposite surfaces of the glass sheet to temper the glass (claim 1). RITTER JR. et al. discloses the use of rollers to move and curve the glass sheets (claims 3 and 4). The apparatus and method of RITTER JR. et al. uses only lower support rollers and fails to teach the use of upper and lower support rollers. BOCELLI et al. discloses a bending and tempering apparatus that passes glass sheets through "a shaping bed comprising a plurality of support elements and a plurality of holding means such as rollers or curved rods" (claim 1). Figure 2 in BOCELLI et al. displays a close up of the upper roller (11) and the lower roller (4). Since RITTER JR. et al. already utilizes a single row of rollers for bending, it would have been obvious to substitute lower and upper rollers into the invention. BOCELLI et al. asserts that using an upper and lower roller system is advantageous because it offers better control of the movement of the glass and aids in the bending (col. 3, lines 60-66). As stated in the background of KAHLE et al., "it is important that the conveying rolls of the roller hearth be of material capable of with standing the heat..." (col. 1, lines 24-26), meaning that it is obvious to those of ordinary skill in the art that a heat-resistant material must be used for rollers in bending and tempering apparatuses. BOCELLI et al. also discloses that the distance between the two support rollers can be adjusted so that the leading edge of the glass passes through a larger clearance (col. 3 line 68 – col. 4 lines 1-5). Therefore, the claimed invention would have been obvious.

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6. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over RITTER JR. et al. (US 3,881,906) in view of BOCELLI et al. (US 4,540,426) and KAHLE et al. (US 4,376,643) as applied to claims 1 and 7 above, and further in view of CARSON et al. (US 3,396,000).

RITTER JR. et al. as modified by BOCELLI et al. and KAHLE et al. teaches a method and apparatus for bending tempered glass with upper and lower rollers bending the glass sheet and an air quench step to temper the glass. Modified RITTER JR. et al. fails to teach the use of differential air-cooling to further bend the glass. CARSON et al. discloses "a method and apparatus... in which a flat sheet of glass is first heated to a bending temperature and then caused to bend to the desired curvature by subjecting the opposite surfaces of the sheet to a differential cooling" (col. 1, lines 52-56). CARSON et al. and modified RITTER JR. et al. disclose a method and apparatus for curving and tempering glass that produce the same result. Combining modified RITTER JR. et al. and CARSON et al. would provide the benefit of quenching and further bending the glass in one step and having a two-step curving system allows improved control the curvature of the glass. It would have been obvious to a person having ordinary skill in the art that replacing the air-quenching step of modified RITTER JR. et al. with the air-quenching/bending of CARSON et al. would produce the same result of a curved tempered glass sheet. Therefore, the claimed invention would have been obvious.

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7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over RITTER JR. et al. (US 3,881,906) in view of BOCELLI et al. (US 4,540,426) and KAHLE et al. (US 4,376,643) as applied to claim 1 above, and further in view of VANASCHEN et al. (US 5022907).

RITTER JR et al. as modified by BOCELLI et al. and KAHLE et al. teaches a method and apparatus for bending tempered glass. Modified RITTER JR. et al. fails to teach the use of a conveyer belt in the bending step of the process. VANASCHEN et al. discloses an apparatus with an endless conveyer belt made up of heat-resistant material (claim 1) and that "possesses a curvature largely adapted to the bending mold" (col. 1, lines 66-67). The rollers in RITTER JR. et al. and the conveyer belt in VANASCHEN et al. both perform the same duty of transporting the glass sheet and bending it. Using the conveyer belt of VANASCHEN et al. in place of the rollers in RITTER JR. et al. would have been a simple and obvious substitution. Therefore, the claimed invention would have been obvious.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over RITTER JR. et al. (US 3,881,906) in view of BOCELLI et al. (US 4,540,426) and KAHLE et al. (US 4,376,643) as applied to claim 5 above, and further in view of LEHTO (US 5,443,609).

RITTER JR et al. as modified by BOCELLI et al. and KAHLE et al. teaches a method and apparatus for bending tempered glass using an upper and lower roller support system to preliminarily bend a glass sheet. Modified RITTER JR et al. fails to

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teach that the upstream clearance is required to be within a range of 0 mm to 3mm.

LEHTO discloses an apparatus for bending and tempering glass that uses two rows of support rollers to bend the glass. LEHTO teaches that the gap should be in a range of 2-3 mm (claim 4). However, LEHTO also states that the rollers are adjustable and therefore can be adjusted such that the clearance lies within a range of 0-3 mm (col. 2 line 47). It would be obvious to use the adjustable press rollers of LEHTO in modified RITTING JR et al. because glass sheets have various thicknesses and the apparatus would be adjusted accordingly. Therefore, the claimed invention would have been obvious.

Conclusion

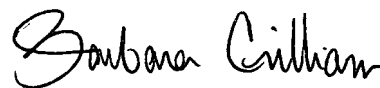
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Szewczyk whose telephone number is (571) 270-5130. The examiner can normally be reached on Monday through Thursday 7:30 am to 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on (571) 272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CS



BARBARA GILLIAM
SUPERVISORY PATENT EXAMINER